

**IN THE CLAIMS**

This listing of claims replaces all prior listings of claims:

1. (Currently Amended) A method in a data processing system having a program for allocating objects in a memory portion that includes a Young Generation and at least one Older Generation, said method comprising:

- (a) receiving a request to allocate at least one object in memory;
- (b) determining whether at least one object should be allocated in said Young Generation in accordance with applying a first promotion policy exercised to each of the objects for promoting objects from said Young Generation memory portion to an one of the Older Generation memory portions of said memory portion;
- (c) determining a probability that each of the objects received will become garbage within a predetermined time period;
- [[ (b) ] ] (d) determining applying a second pre-emptive promotion policy which preempts the first promotion policy for said at least one and delays the promotion of each of the objects determined to have a high probability of becoming garbage in the determining step-object when said determining (a) determines that said at least one object should not be allocated in said Young Generation in accordance with said first promotion policy; and
- [[ (c) ] ] (e) storing said at least one each object in said Young Generation memory portion in accordance with said second policy when said determining (b) determines the second promotion policy for said object.

2. (Currently Amended) The method as recited in claim 2, wherein said probability determining (a) of whether at least one object should be allocated in accordance with a first promotion policy comprises step includes:

determining whether said at least one object is used as temporary data.

3.-5. (Cancelled)

6. (Currently Amended) The method as recited in claim [[5]] 1, wherein said ~~determining of whether said at least one object is garbage determines~~ second promotion policy is applied if whether the probability that an object will become garbage is at least 50% of said at least one object is garbage.

7. (Cancelled)

8. (Currently Amended) The method as recited in claim 1, wherein ~~of said determining (a) of whether an object should be allocated in accordance with a first promotion policy~~ comprises the step of applying the first promotion policy further includes:

determining whether one or more of the following operations are being performed:  
loading a class, parsing a file that represents a class, dynamic compilation, and a call to a library function that generates temporary data.

9. (Previously Presented) The method as recited in claim 8, wherein said class is Java<sup>TM</sup> compliant class represented in a class file, said dynamic compilations are performed in Java<sup>TM</sup> compliant run time environment, and said library function is Java<sup>TM</sup> compliant library method.

10. (Previously Presented) The method as recited in claim 9, wherein said Java<sup>TM</sup> compliant library method is associated with concatenation of Java<sup>TM</sup> strings.

11. (Currently Amended) The method as recited in claim 1 wherein ~~said (c) allocating of said at least one object in said Young Generation in accordance with said second promotion policy comprises the step of applying the second pre preemptive promotion policy~~ includes:

allocating said at least one ~~object~~ object with a header that indicates said second preemptive promotion policy.

12. (Previously Presented) The method as recited in claim 11, wherein said header includes a preemption indicator that indicates a garbage collection count should be preempted and said at least one object should not be promoted to said next generation.

13. (Currently Amended) The method as recited in claim 11, wherein said header includes a preemption indicator and a preemption value~~[[;]]~~,  
~~wherein~~ said preemption indicator indicates that a garbage collection count should be preempted~~[[;]]~~,  
~~wherein~~ said preemption value provides a preemptive garbage collection count that is used instead of a garbage collection count.

14. (Previously Presented) The method as recited in claim 11, wherein said header provides a garbage collection count to determine when said at least one object should be promoted from said Young Generation to said Older Generation.

15. (Currently Amended) A computer system, comprising:  
at least one processing unit;  
a memory portion that is partitioned into a Young Generation and at least one Older Generation;  
a first memory allocator that operates to allocate one or more objects in said Young Generation in accordance with a first promotion policy for promoting said one or more objects from said Young Generation partition to ~~[[an]]one of the~~ Older Generation partitions in said memory; and  
a second memory allocator that preempts the first memory allocator and operates to allocate one or more other objects in said Young Generation in accordance with a second promotion policy for promoting said one or more other objects~~delays the promotion of the object~~ from said Young Generation partition to ~~[[an]]one of the~~ Older Generation partitions in said memory if the probability that the object will become garbage within a predetermined time period is larger than a predefined value.

16. (Currently Amended) The computer system as recited in claim 15, wherein said ~~method-system~~ further comprises:

an allocation interface that can be used to access both said first and second memory allocators,

wherein,

said allocation interface operates to use said first or second memory allocators in accordance with an allocation selection, and

an allocation switching function that can be used to switch said allocation selection from said first memory allocator to said second memory allocator.

17. (Previously Presented) The computer system as recited in claim 15, wherein said first and second memory allocators can be directly accessed.

18. (Cancelled)

19. (Previously Presented) The computer system as recited in claim 15, wherein said second allocator allocates at least one object with a header that indicates said second promotion policy.

20. (Previously Presented) The computer system as recited in claim 15, wherein said header includes a preemption indicator indicating that a garbage collection count should be preempted and said at least one object should not be promoted to said next generation.

21. (Currently Amended) The computer system as recited in claim 20, wherein said header includes a preemption indicator and a preemption value;  
~~wherein~~ said preemption indicator indicates that a garbage collection count should be preempted; and

~~wherein~~ said preemption value provides a preemptive garbage collection count that is used instead of said garbage collection count.

22. (Currently Amended) The computer system as recited in claim 20, wherein said header provides a garbage collection count that is used to determine when said at least one object should be promoted from said Young Generation partition to said Older Generation partition.

23. (Previously Presented) The computer system as recited in claim 19, further comprising:  
a garbage collector that reads said header and promotes said at least one object in accordance with said header.

24. (Currently Amended) The computer system as recited in claim 23, wherein said garbage collector ~~delays or~~ avoids promotion of said at least one object with respect to objects allocated with said first allocator.

25. (Previously Presented) The computer system as recited in claim 15, wherein said computer system is a virtual machine.

26. (Previously Presented) The computer system as recited in claim 15, wherein said computer system is a Java<sup>TM</sup> compliant virtual machine.

27. (Previously Presented) The computer system as recited in claim 15, wherein said computer system is provided for a handheld, an embedded, or mobile device.

28. (Withdrawn) A method of garbage collecting a heap in a computing environment, said heap including a Young Generation and at least one Older Generation.  
receiving a request for allocation of one or more objects in said heap;  
determining whether promotion of said one or more objects should be delayed beyond a normal garbage collection threshold;  
generating a delay-promotion marking for said one or more objects that indicates promotion of said one or more objects should be delayed beyond said normal garbage collection threshold;

allocating said one or more objects with said delay-promotion marking in said Young Generation of said heap;

determining whether said Young Generation should be garbage collected;

determining whether said one or more objects have reached a normal garbage collection threshold when said determining determines that said Young Generation should be garbage collected; and

not promoting said one or more objects to an Older Generation when said delay promotion marking indicates that said one or more objects should not be promoted to an Older Generation.

29. (Currently Amended) A computer readable medium including computer program code for allocating objects in a memory portion that includes a Young Generation and at least one Older Generation, said computer readable medium including comprising:

computer program code for allocating one or more objects in said Young Generation memory portion in accordance with a first promotion policy exercised for promoting objects from said Young Generation memory portion to [[an]]one of the Older Generation memory portions ~~of said memory portion~~; and

computer program code for allocating one or more ~~other~~ objects in said Young Generation memory portion in accordance with a second promotion policy which preempts the first promotion policy and is exercised for promoting objects from said Young Generation memory portion to one of the [[an]] Older Generation ~~of said memory portion~~ memory portions based on the probability that each of the objects will become garbage within a predetermined time frame.

30. (Currently Amended) The computer readable medium as recited in claim 29, wherein said second promotion policy is not to promote said one or more objects from said Young Generation memory portion to ~~said one of the Older Generation memory portions~~ of said memory portion.

31. (Currently Amended) The computer readable medium as recited in claim 29,  
| wherein said second promotion policy is to ~~delay~~avoid the promotion of said one or more other  
objects with respect to objects allocated under said first promotion policy.